Wildlife Site Selection Criteria

Northamptonshire

2007

Last Updated
05/02/2014

Northamptonshire
Biodiversity Partnership

Local Wildlife Sites
Panel

Contents

1. Introduction

What are Wildlife Sites?

Wildlife Sites are areas of land rich in wildlife. They are places where species and habitats flourish because of past management. Wildlife Sites are not protected by law. Hence their survival depends on owners and managers sympathetic to the needs of wildlife, who in many cases work closely with conservationists to manage the land for the benefit of wildlife.

At the Rio Earth Summit the nations of the world expressed their concern for the environment, and planned action to protect the world's wildlife – biodiversity. The UK responded by producing a Biodiversity Action Plan and mechanisms for carrying it out. From this UK plan local biodiversity plans have been developed to protect particular species and habitats – Northamptonshire's Biodiversity Action Plan was first launched in March 1997 an a the second edition in 2008. Local action to safeguard Wildlife Sites is crucial to the success of the Biodiversity Action Plan. In more recent times the importance of local wildlife sites and wildlife habitats has been addressed in documents such as the National Planning Policy Framework (NPPF).

The NPPF recognises the importance of that Local Wildlife Sites have in conserving our local wildlife and contributing to overall national biodiversity outcomes. It places the responsibility of protecting Wildlife Sites through the planning system and Local Authority Local Plans.

Assessment of sites.

The system for identifying Wildlife Sites in Northamptonshire takes into account National priorities, local distinctiveness and threats and declines in certain species or habitats. The system has to be developed locally because certain habitats or species would be identified as deserving Wildlife Site status in one part of the country but not necessarily in another. The system does not try to identify all sites of importance for wildlife in Northamptonshire, only those of substantial quantifiable value.

The Sites are usually of good wildlife quality because of the way their owners have carefully managed them over the years. Most are privately owned and it is through the goodwill of the owners that the sites have retained their wildlife value. The identification of land as a Wildlife Site is recognition of its wildlife importance.

What kind of sites are they?

Wetlands, ancient woodlands, heaths, pastures, roadside verges, hedgerows and meadows across the UK have been included in the network of Wildlife Sites. The sites make up the fabric of our countryside and are wildlife refuges in towns and cities. Statutory sites and Wildlife Sites together form a significant resource for the whole country.

The Wildlife Sites System.

The system for assessing and protecting Wildlife Sites in Northamptonshire is based on partnership, as it is throughout the rest of the UK. The Wildlife Trust, local authorities, statutory conservation agencies, local naturalists and landowners are involved in the process. Each plays a different role in supplying data, identification and protection. This local partnership means that information on Wildlife Sites is growing steadily, providing opportunities to implement Biodiversity Action Plans, meet targets for species and habitats and contribute to the conservation on Northamptonshire's wildlife. Together with statutory sites and nature reserves, Wildlife Sites and Potential Wildlife Sites (PWS) are a major part of our natural assets.

The Role of Wildlife Sites.

Wildlife Sites are the most important places for wildlife outside legally protected land such as SSSIs. LWS provide a baseline of Biodiversity in the County and in combination with PWS can provide

guidance on the delivery of Green Infrastructure (GI) and Biodiversity. The availability of information about where Wildlife Sites are and why they are important allows owners, planners and conservation bodies to work together to make informed decisions about the future of these sites. Available funding can then be targeted where it can be of most value in protecting biodiversity.

Protecting Wildlife Sites.

The key to protection is information. People need to know where the sites are and why they are important. Owners and managers of sites must understand why their land is of value and should know how to manage it for the benefit of wildlife. The wildlife value of sites is taken into account when Local Plans are prepared and when decisions are taken in line with these Local Plans. Identification of Wildlife Sites aids this process by making it immediately obvious those areas that are of greatest wildlife value

2. How these guidelines work

These guidelines are set out with four main sections. The first section explains how the national criteria for the selection of sites of nature conservation importance have been used to develop the basis for the selection of sites of county importance (section 4). The main section (section 6) is then the Threshold Limits against which sites should be compared to assess whether or not they merit Wildlife Site status. Sites for assessment will be based on the boundaries of ecological units, and management units, and a minimum survey should be carried out. The results of the survey will be compared against the threshold limits, and sites that meet or exceed them will be designated as Wildlife Sites. Sites which approach the threshold limits will then be assessed for supplementary factors which are laid out in two ways. General supplementary factors which apply to all habitat types are listed in Section 5. Supplementary factors which only apply to specific habitats are listed after the threshold limits for that habitat type. These factors together will then be used to determine whether or not the site should be given wildlife site status. See Figure 1.

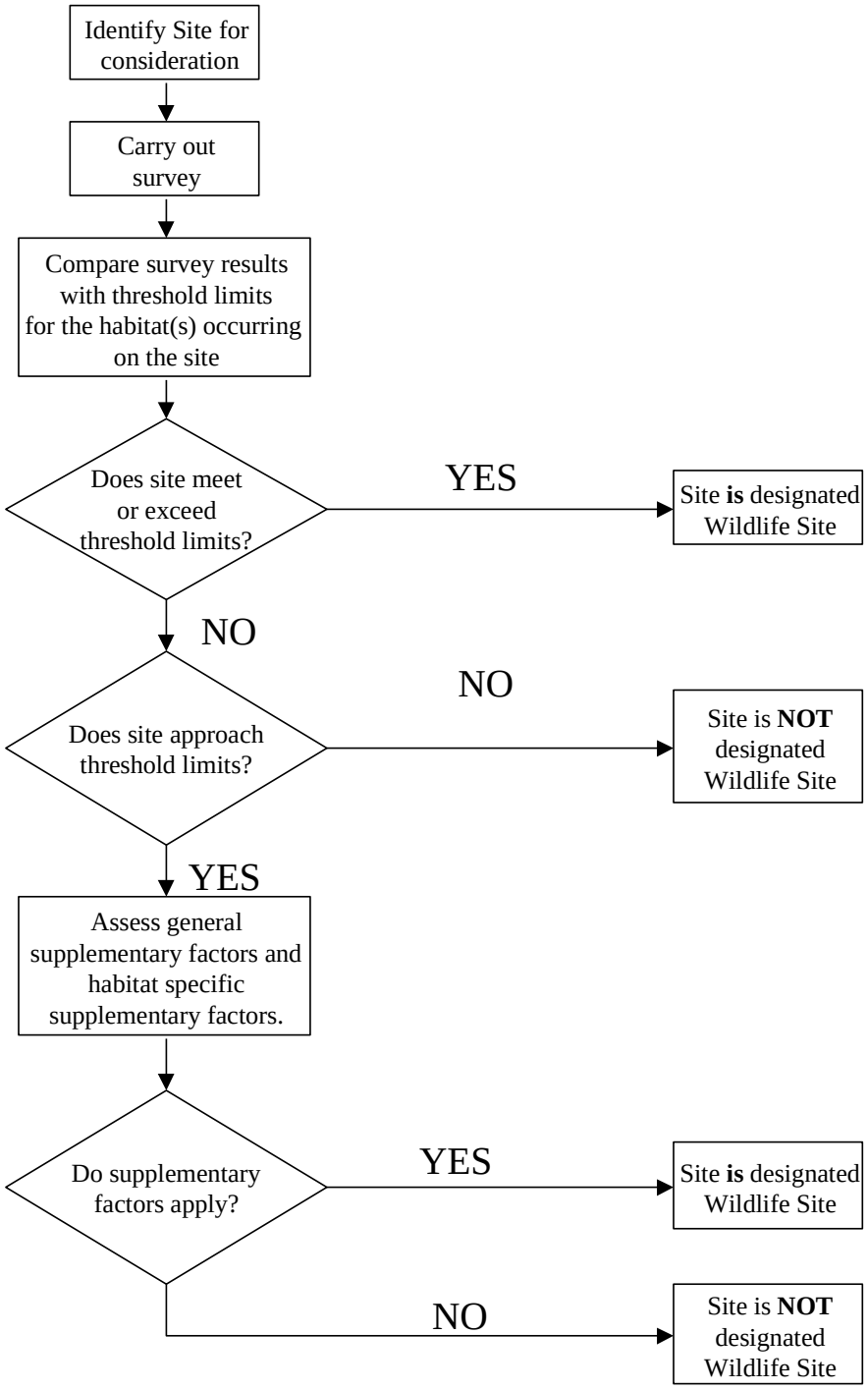
The final section, the appendices, give details of the species used to determine the threshold limits. The appropriate appendices are referenced in the thresholds to which they appertain.

These guidelines have been procuced by the Wildlife Trust in consultation with Local Authorities, Statutory Agencies, Local Naturalists and Landowners. Wider public knowledge and support for LWS is essential and where possible wider public consultation has also been carried out.

Although extensive, these guidelines do not cover all habitats and species assemblages found in Northamptonshire. Additional site selection thresholds are being developed and will be incorporated into these guidelines when complete and following ratification by the Northamptonshire Wildlife Sites Partnership.

Figure 1.

Procedure for considering sites for designation as Wildlife Sites in Northamptonshire



3. Notification procedure

In Northamptonshire, records of Wildlife Sites are maintained by the Wildlife Trust and the Local Authorities. Where sites are identified as having wildlife value they will be brought to the attention of the Wildlife Trust. Where it is possible to secure permission of the landowner for a site survey, this will be carried out by the Wildlife Trust as soon as possible and to the minimum levels described elsewhere. The Wildlife Trust will then compare the survey results against the criteria using the above procedure.

Once notification of the site has been agreed the Wildlife Trust informs the landowner, as well as the County Council and the district council(s) within whose boundaries the site lies. The Wildlife Trust prepares a site report and this will be available to the relevant authorities, land owner/manager and the Northamptonshire Biodiversity Records Centre. The Wildlife Trust will retain information covered by the Data Protection Act. Boundaries will be drawn up using GIS to minimise any possible confusion over the boundaries of the Wildlife Site.

The boundaries of Wildlife Sites will be drawn up to encompass the full range of habitats within the ecological unit. They will therefore include boundary features of significant benefit to the wildlife of the site, and all areas integral to the viability of the site. An entire Wildlife Site may therefore encompass areas, which on their own would not meet the threshold for inclusion, but which are integral to the site as a whole. However, the boundaries will not include ‘buffer land’ adjacent to wildlife sites. Although buffer land is clearly desirable, it is not an essential part of the existing ecological unit.

4. The context for the development of the guidelines

Wildlife Site selection in Northamptonshire is based on the criteria identified by Ratcliffe (A Nature Conservation Review, ed D.A. Ratcliffe, CUP, 1977) for the selection of sites on National importance. These are:

- Naturalness
- Size
- Diversity
- Rarity
- Fragility
- Typicalness
- Recorded History

Additional factors identified were:

- Position in ecological and geographical unit
- Potential value
- Intrinsic appeal

Naturalness
It is recognised that there are no habitats remaining in Northamptonshire that can be truly characterised as being natural. However, the notification of Wildlife Sites is intended to identify those habitats supporting the range of biodiversity naturally inhabiting Northamptonshire. This can be defined as those species that would have inhabited Northamptonshire historically as well as those species that have become naturalised in Northamptonshire as a result of climate change. The habitats supporting this range of diversity are often characterised as being semi-natural.

As Northamptonshire historically supported a range of habitat types, the selection of habitats for notification is intended to reflect this. Therefore semi-natural habitats across the range of successional stages have been identified.

For convenience, the definition of habitats is determined by communities, often plant communities as these are easily surveyed. In some cases it is necessary to base the definition on assemblages of species. Some species of high conservation concern will be considered sufficient for the notification of Wildlife Sites. These species will be those identified as being of high concern in the national Red Data Books and the national Biodiversity Action Plan, or in the Red Data Book for Northamptonshire and the Biodiversity Action Plan for Northamptonshire.

The only habitats that approximate to natural systems are the rivers and their surrounds. This is particularly true where there are a range of natural features such as meanders, riffles, eroding banks and high water quality.

Size
The size of a site has a direct bearing on its ability to retain species and to resist the colonisation of unwanted species. The thresholds set for sites in Northamptonshire are a reflection of the abundance of the habitat type under consideration.

Diversity
Although high diversity is generally a useful criterion, it has to be considered in the context of appropriate species within their associated habitat. Some habitat types maintain species assemblages that are inherently low in diversity but are nevertheless important because these species are dependent on that habitat alone. This is reflected in the thresholds based on assemblages of species within habitat types. It is not possible to use a comparison of diversity between habitat types as a measure of nature conservation importance.

Rarity
The rarity of habitats and species has a direct bearing on the thresholds for selection. The destruction of habitats within Northamptonshire has resulted in a scarcity of good examples of many important habitat types. It is therefore vital to preserve a higher proportion of rare habitat types. The thresholds

given reflect this. Similarly, the preservation of rare species is important to prevent a loss to Northamptonshire's biodiversity.

The presence and distribution of species within Northamptonshire is becoming better known but the data is highly variable between groups. Site selection for rare species will be guided by the Red Data Book for Northamptonshire and the Biodiversity Action Plan for Northamptonshire.

Fragility
The most fragile habitats are those least easily recreated. Therefore, priority has been given to those habitats harder to re-create through the Biodiversity Action Plan process.

Typicalness
Priority will be given to sites that are typical examples of rare habitats within Northamptonshire. It is important that Wildlife Site designation in Northamptonshire encompasses habitats supporting the complete range of natural wildlife.

Recorded History
Sites with an extensive recorded history have an added value, not only because more is known about those sites themselves, but also because they can be important in developing our knowledge of wildlife in Northamptonshire, and how it is affected by management. No site will be designated on recorded history alone, but the presence of detailed records for a site will add to their value.

Position in ecological and geographical unit
It is important to represent habitats within the wildlife site system that occur in all the natural areas of Northamptonshire. Though some sites may support similar habitats, their position within both ecological and geographical units may vary markedly. Therefore the wildlife site system will include similar sites within the full range of ecological and geographical variation in Northamptonshire. The boundaries of wildlife sites should, where possible, encompass units.

Potential Value
Sites that show degradation, either through lack of management or damage, will be considered for inclusion where the prospect of recovery still exists.

Intrinsic appeal
The intrinsic appeal of a site cannot be quantified subjectively. Therefore it will never be used on its own as a criterion for site selection. However, where sites are clearly locally valued this may enhance the possibility for protection and management of a site, and will be included in the assessment of sites.

Criteria for Northamptonshire
A series of thresholds have been produced which reflect the above criteria and which are based on the Guidelines for Selection of Biological SSSIs (1989) set out by the Nature Conservation Committee. These have been modified appropriately for the selection of sites of County importance for Northamptonshire. It is recognised that these thresholds will need to be reviewed regularly as the state of knowledge both nationally and locally improves, and as the wildlife of Northamptonshire changes.

Where possible, selection should be made solely on the basis of the thresholds given here. However, in some cases it may not be clear whether or not a site meets or exceeds the thresholds. In these cases a number of supplementary factors are given. These are explained in the following section.

5. Relationships with National and International Legal Designations.

Sites with national or international designations, such as SSSI, SPA, SAC (including pSPA, cSAC), should only become Local Wildlife Sites where they contain additional features of 'substantive nature conservation interest' in the local context, besides the special features for which they are designated. For example, a site designated for its geological features may also contain features of local biological interest, or vice versa.

Where a SSSI is part of a larger area of substantive nature conservation interest, the contiguous area should be considered for selection as a Local Site and assessed against the agreed local criteria.

In some situations there will be slight overlap between LWS and SSSI boundaries, in order to incorporate the whole of a managed unit.

Therefore in conjunction with nationally and internationally designated sites, local Wildlife Sites will provide seek to provide a baseline of biodiversity in the County and also guide the provision of Biodiversity Enhancement and Green Infrastructure.

6. Site Selection thresholds

General Supplementary Factors

Supplementary factors are to be considered for any site nearly meeting threshold values for wildlife site selection.

a) Historical documentation, such as site being shown on the first Edition Ordnance survey maps of 1836, information about the site being held in the Local Record Office or reference to the site in the Victoria County History.

b) The presence of historical features, which often support additional wildlife. These include ancient pollards, ancient coppice stools, medieval wood banks, ridge and furrow, old moats, strip lynchets and barrows.

c) Habitat types or species included within Section 74 of the Countryside and Rights of Way Act 2000 are present within the site.

d) Sites which Buffer or link an existing site of National or international importance (eg SSSI, SPA).

e) The site being sufficiently large, or in a suitable environment, to prevent long-term loss of species through outside factors such as spray drift.

f) Connectivity of the site with other areas, allowing the movement of species between habitats, such as hedgerows, scrub or other semi-natural habitats.

g) A good ecotone along the margin of the site.

h) Potential for the site to recover from damage or lack of management.

i) The presence of a range of sub-habitats within the site, including steep slopes, bare ground, damp areas, hedgerows, temporary pools, ponds, streams and ditches.

j) The presence of invertebrates exceeding an index of 500, calculated by scoring 100 for nationally rare species and 50 for nationally scarce species.

Woodland, Trees and Scrub

Northamptonshire BAP habitats; Lowland Mixed Deciduous Woodland
Wet Woodland
Wood Pasture and Parkland

Ancient woodland indicators are listed in Appendix 1. Woody species for determining scrub and hedgerow value are listed in Appendix 2. Woodland and hedgerow plants in Northamptonshire are listed in Appendix 3.

Sites meeting or exceeding any one of the following thresholds will be considered to be Local Wildlife Sites in Northamptonshire:

a) Ancient semi-natural woodlands included in the Northamptonshire Inventory of Ancient Woodlands which retain over 25% semi-natural cover.

b) Ancient semi-natural woodlands over 2ha which are over 75% replanted *OR* secondary woodlands over 2 hectares which contain either:
   i) more than 8 ancient woodland indicator species (Appendix 1);
   ii) more than 40 woodland plants (Appendix 3).

c) Ancient semi-natural woodlands under 2 ha *OR* secondary woodlands under 2 hectares which contain one of the following:
   i) more than 5 ancient woodland indicator species (Appendix 1);
   ii) more than 30 woodland plants(Appendix 3);
   iii) a good example of NVC W8 (ash – field maple – dog's mercury woodland);
   iv) a good example of NVC W10 (pedunculate oak – bracken – bramble woodland);
   v) a good example of NVC W16 (oak – birch – wavy hair-grass woodland).

d) Good examples of the following woodlands, more than 1 ha in size:
   i) NVC W1 (grey willow – marsh bedstraw);
   ii) NVC W2 (grey willow – downy birch – common reed);
   iii) NVC W4 (downy birch – purple moor-grass);
   iv) NVC W5 (alder – tussock sedge);
   v) NVC W6 (alder – stinging nettle);
   vi) NVC W12 (beech – dog's mercury);
   vii) NVC W14 (beech – bramble).

e) Areas of scrub more than 0.5 ha in extent, with either NVC W21 (hawthorn – ivy) or NVC W22 (blackthorn – bramble), and with more than 8 woody species (Appendix 2) at least occasional to frequent.

f) Any stand of 20 or more veteran trees.

g) Pollard willows and native black poplars where:
   i) groups of 5 – 19 mature pollard willows or native black poplars are in association with other semi -natural features such as semi-improved or unimproved grassland, ditches or rivers.
   ii) groups of 20 or more mature pollard willows or native black poplars occur, even in an arable setting.

Supplementary factors specific to these habitats

The presence within the site of good quantities of old trees (with a diameter of >60cm at 1.2m above ground level) and standing or fallen deadwood.

Hedgerows

Northamptonshire BAP habitats; Hedgerows

Rare hedgerow and woodland species are listed in Appendix 3, which is an extract from the Hedgerow Regulations (1997). Any hedge scoring 9 points or more against the following criteria will be selected as a Wildlife Site.

Size

1 Point	20 to 50 metres in length
2 Points	50 to 100m in length
3 Points	Over 100m in length

The minimum size used in this criterion reflects the size qualification used in the 1997 hedgerow legislation for important hedgerows. Given the linear nature of this habitat it was decided that in order to gain a 3 point score in this section the hedge would need to be substantial, hence the large size qualification needed. No indication of the width of hedge needed to qualify is given because it was decided that this would be too variable a criterion to use successfully.

Rarity (Species)

1 Point	no uncommon species from Appendix 3 occur.
2 Points	uncommon species from Appendix 3 occur.
3 Points	Red Data Book or Rare Species from Appendix 3 occur.

Rarity (Habitat)

1 Point	Post Enclosure hedge.
2 Points	Enclosure hedge.
3 Points	Pre Enclosure hedge

Due to the difficulties of classifying hedges by rarity, they should be classified by their likely ages. Therefore the classification shown above was adopted. It was felt that this more accurately reflected the value of a hedge from a habitat point of view than other classification methods.

Diversity (Species)

1 Point	2 to 4 species from Appendix 3 per 30m
2 Points	5 to 7 species from Appendix 3 per 30m
3 Points	8 or more species from Appendix 3 per 30m

It was felt that these thresholds represented a fair reflection of the relative value of hedgerows based on known examples and the guidance given in the Hedgerows Regulations (1997). In cases where a Red Data Book species occurs but is not on the list a case must be made for its inclusion as part of the intrinsic habitat of the hedge or hedge bottom before it can be included.

The 30m section of hedgerow to be assessed for species diversity should be chosen according to the Hedgerow regulations (1997) which means that:

- Where the length of the hedgerow does not exceed 30m the full length should be checked for the species of interest.
- Where the hedge is between 30m and 100m the central stretch of 30m should be checked.
- Where the hedge is between 100m and 200m the central 30m stretch of each half should be checked and the aggregate score divided by 2.
- Where the length of the hedge exceeds 200m the central stretch of each third of the hedge should be checked and the aggregate divided by three.

Supplementary factors specific to these habitats

The presence within the site of good quantities of old trees (with a diameter of >60cm at 1.2m above ground level) and standing or fallen deadwood.

Neutral Grassland

Northamptonshire BAP habitats; Lowland Meadows
Floodplain Grazing Marsh

Neutral grassland indicator species and strong neutral grassland indicator species are listed in Appendix 4.

Sites meeting or exceeding any one of the following thresholds will be considered to be Wildlife Sites in Northamptonshire:

a) Neutral grasslands supporting good examples at least 0.05 ha in size (either in a block or as a number of smaller areas) of one of the following NVC communities:
   i) MG8 (crested dog's tail – marsh marigold flood pasture).
   ii) MG13 (creeping bent – marsh foxtail inundation grassland).

b) Neutral grasslands supporting good examples at least 0.2 ha in size (either in a block or as a number of smaller areas) of one of the following NVC communities:
   i) MG4 (meadow fox-tail – great burnet flood meadow).
   ii) MG5 (crested dog's-tail - common knapweed meadow and pasture).

c) Neutral grassland sites of more than 0.1 ha supporting populations of either:
   i) Three or more *strong* neutral grassland indicator species.
   ii) Eight or more neutral grassland indicator species in total.

d) Sites supporting populations of more than 50 grassland species.

Calcareous grassland

Northamptonshire BAP habitats; Lowland Calcareous Grassland

Calcareous grassland indicator species and strong calcareous grassland indicator species are listed in Appendix 5.

Sites meeting or exceeding any one of the following thresholds will be considered to be Wildlife Sites in Northamptonshire:

a) Calcareous grasslands supporting good examples of at least 0.1 ha in size (either in a block or as a number of smaller areas) of one of the following NVC communities:
   - i) CG2 (sheep's fescue – meadow oat grass grassland).
   - ii) CG3 (upright brome grassland).
   - iii) CG4 (tor grass grassland).
   - iv) CG5 (upright brome – tor grass grassland).
   - v) CG6 (hairy oat-grass grassland).
   - vi) CG7 (sheep's fescue – mouse-ear hawkweed – wild thyme grassland).

b) Calcareous grassland sites of 0.1 ha or more in size (either in a block or as a number of smaller areas) supporting populations of either:
   - i) six or more *strong* calcareous grassland indicator species.
   - ii) sixteen or more calcareous grassland indicator species in total.

c) Sites supporting populations of more than 50 grassland species.

Heathland and Acid grassland

Northamptonshire BAP habitats; Lowland Dry Acid Grassland
Lowland Heathland

Heathland and acid grassland indicator species and strong heathland and acid grassland indicator species are listed in Appendix 6.

Sites meeting or exceeding any one of the following thresholds will be considered to be Wildlife Sites in Northamptonshire:

a) Heathland and acid grassland sites supporting areas of at least 0.05 ha in size (either in a block or as a number of smaller areas) of one of the following NVC communities:
   - i) U1 (sheep's fescue – common bent – sheep's sorrel grassland).
   - ii) U2 (wavy hair-grass grassland).
   - iii) H1 (heather – sheep's fescue heath).
   - iv) H9 (heather – wavy hair-grass heath).

b) Sites of 0.05 ha or more in size (either in a block or as a number of smaller areas) supporting populations of either:
   - i) three or more *strong* heathland and acid grassland indicator plant species.
   - ii) six or more heathland and acid grassland indicator species in total.

Fens, Swamps and Marshes

Northamptonshire BAP habitats; Lowland Fens
Floodplain Grazing Marsh
Reedbed

Fen, swamp, marsh and wetland indicator species and strong fen, swamp, marsh and wetland indicator species are listed in Appendix 7.

Sites meeting or exceeding any one of the following thresholds will be considered to be Wildlife Sites in Northamptonshire:

a) Topogenous fens supporting any of the following NVC communities:
   i) S3 (tussock sedge swamp).
   ii) S13 (lesser bulrush swamp).
   iii) S20 (grey club-rush swamp).

b) Topogenous fens supporting at least 0.05 ha (either in a block or as a number of smaller areas) of any of the following NVC communities:
   i) S25 (common reed – hemp agrimony tall herb fen).
   ii) S26 (common reed – stinging nettle tall herb fen).
   iii) S6 (great pond sedge swamp).
   iv) S7 (lesser pond sedge swamp).

c) Topogenous fens supporting at least 0.2 ha (either in a block or as a number of smaller areas) of the following NVC community:
   i) S4 (common reed swamp and reed beds).

d) Fen meadow supporting at least 0.05 ha (either in a block or as a number of smaller areas) of any of the following NVC communities:
   i) M22 (blunt-flowered rush – marsh thistle fen meadow).
   ii) M23 (soft rush – marsh bedstraw rush pasture).
   iii) M24 (purple moor-grass – meadow thistle fen meadow).
   iv) M27 (meadowsweet – wild angelica mire).

e) Mires supporting at least 0.05 ha (either in a block or as a number of smaller areas) of any of the following NVC communities:
   i) M6 (star sedge- bogmoss mire).
   ii) M9 (bottle sedge – Calliergon cuspidatum / giganteum mire).

f) Continuous area of fen of any category of over 1 ha, which is not appreciably degraded.

g) Sites of at least 0.1 ha containing well-developed vegetation mosaics representing hydroseral zonation.

h) Sites of at least 0.1 ha which have a combination of two or more fen or mire types.

i) Grasslands containing flushes, seepages or springs which are not appreciably degraded and supporting populations of either:
   i) Two or more *strong* fen, marsh and wetland indicator species.
   ii) Four or more fen, marsh and wetland indicator species.

j) Sites supporting Sphagnum species.

k) Sites supporting populations of either:
   i) Three or more *strong* fen, marsh and wetland indicator species.
   ii) Six or more fen, marsh and wetland indicator species.

Supplementary factors specific to these habitats
The presence of a satisfactory long-term water supply and, if appropriate, the means or potential to control water levels.

The presence of areas of water which are either oligotrophic or mesotrophic.

Freshwater habitats

Northamptonshire BAP habitats; Eutrophic Standing Waters
Rivers
Ponds

Fen, swamp, marsh and wetland indicator species and strong fen, swamp, marsh and wetland indicator species are listed in Appendix 7.

Sites meeting or exceeding any one of the following thresholds will be considered to be Wildlife Sites in Northamptonshire:

a) Criteria for the selection of riverine Local Wildlife Sites have not been developed and specific sections of rivers will not be designated as Wildlife Sites. All rivers in the County are recognised as of importance to wildlife and should be treated as of equal importance to Wildlife Sites. Areas of river may be included where they form part of a Local Wildife Site that qualifies under separate criteria i.e. water vole colonies or adjacent semi-natural habitat (grassland, marsh, swamp, scrub, trees and woodland) that is of LWS standard in its own right.

b) Water bodies at least 0.05 ha in size, or a number of small pools within close proximity with a combined area of 0.05 ha or more, which support any of the following NVC communities:
   i) A3 (greater duckweed – frogbit community).
   ii) A8 (yellow water-lily community).
   iii) A11 (fennel-leaved pondweed – spiked water-milfoil community).

c) Water bodies at least 0.05 ha in size, or a number of small pools within close proximity with a combined area of 0.05 ha or more, which support either:
   i) 5 submerged and floating native species, where at least one of the species is a *strong* fen, swamp, marsh and wetland indicator species or three are fen, swamp, marsh and wetland indicator species.
   ii) 15 submerged, floating and emergent native species, where at least one of the species is a *strong* fen, swamp, marsh and wetland indicator species or three are fen, swamp, marsh and wetland indicator species.

d) Water bodies at least 0.05 ha in size which support any species of stonewort.

e) Any pond or water body supporting one or more species of Sphagnum.

f) Any water body with three or more species of native pondweed (Potamogeton spp.).

g) Any ditch with either:
   i) Five or more species of submerged, floating or emergent species per 20m length, where at least one of the species is a *strong* fen, swamp, marsh and wetland indicator species or three are fen, swamp, marsh and wetland indicator species.
   ii) Ten or more submerged, floating, emergent and wet bank species per 20m length, where at least one of the species is a *strong* fen, swamp, marsh and wetland indicator species or three are fen, swamp, marsh and wetland indicator species.

NB. Normal ditch management will affect the apparent quality of a ditch, which is likely to reach its optimum state two or three years after slubbing out. This variation should be borne in mind when selecting sites.

h) Any water body supporting populations of either:
   i) Three or more *strong* fen, swamp, marsh and wetland indicator species.
   ii) Six or more fen, swamp, marsh and wetland indicator species.

Supplementary factors specific to these habitats

The presence of a satisfactory long-term water supply and, if appropriate, the means or potential to control water levels.

Open Mosaic Habitats

Northamptonshire BAP habitats; Open Mosaic Habitats on Previously Developed Land

Sites meeting or exceeding the following threshold will be considered to be Wildlife Sites in Northamptonshire:

Sites must meet the BAP description of open mosaic habitats. Sites must be previously developed land now returning to a natural function and consisting of pioneer communities with areas of relatively stable bare ground (of worth to invertebrates), and with associated habitats including one or more of the following;

- Species rich neutral, calcareous or acid grassland
- Woodland or mature trees
- Scrub
- Hedgerows
- Fen, swamp or marsh communities
- Ponds or ditches

At least one habitat feature should be either of, or closely approaching, LWS standard in its own right.

Many of these sites will be of value for birds and / or invertebrates, and may qualify under these criteria if sufficient data are available for evaluation.

Traditional Orchards

Northamptonshire BAP habitats; Traditional Orchards

Traditional Orchards are defined as a group of five or more mature, traditional, cultivated fruit or nut trees in close proximity. The habitat is defined more by its structure than its vegetation type, with open grown mature trees sat in herbaceous vegetation. Traditional orchards are dominated by older, less intensively managed 'standard' trees, with main branches above the reach of grazing animals and planted at relatively low densities (between 3 and 20m depending on species). Low intensity managament is a key distinguishing factor with herbaceous vegetation grazed or hay cut, no chemical input, no frequent mowing and the absence of herbicidal strips. The second key feature is the surrounding associated habitat which often consists of scrub, hedgerows, ponds and other wetland features and alongside the fruit trees provide important wildlife habitat. The trees themselves have associated dead and decaying wood features of value to wildlife in particular invertebrates.

Sites meeting or exceeding the following threshold will be considered to be Local Wildlife Sites.

Sites must meet the BAP definition of Traditional Orchards and include at least 2 of the following features;

i) The presence of a nationally rare or scarce species or species rare in the county,

ii) Associated natural or semi-natural habitat, within or adjacent to the site (e.g. woodland, unimproved grassland, ponds, hedgerows),

iii) The presence of rare or scarce fruit varieties, or of varieties of local significance,

iv) Evidence that the trees have extensive or significant fungal or lichen associations,

v) More than one of the orchard trees show evidence of structural characteristics of veteran or biologically significant trees,

vi) Continuing traditional orchard management practices that are sympathetic with biodiversity objectives and reflect local cultural traditions.

Vascular Plants

Nationally Rare species of native vascular plants found in Northamptonshire are listed in Appendix 8.

Nationally scarce species of native vascular plants found in Northamptonshire are listed in Appendix 9.

Native vascular plant species considered extremely rare in Northamptonshire are listed in Appendix 10.

Rare and declining native arable weeds are listed in Appendix 11.

Sites meeting or exceeding any one of the following thresholds will be considered to be Wildlife Sites in Northamptonshire:

a) Sites supporting populations of Nationally Rare or Nationally Scarce Species of native vascular plants.

b) Sites supporting populations of native species of vascular plants which are extremely rare in Northamptonshire (have been located in three or fewer localities in Northamptonshire since 1970 - locality is taken here as an area of one kilometre square centred on the population).

c) Arable land supporting populations of three or more rare or declining arable weeds.

Non-Vascular Plants

Sites meeting or exceeding any one of the following thresholds will be considered to be Wildlife Sites in Northamptonshire:

a) Sites supporting populations of IUCN Red Data Book species of stoneworts, bryophytes, lichens or fungi.

b) Sites listed as important in the Bryophyte Site register of Northamptonshire.

c) Sites supporting populations of species of stonewort, bryophyte, fungus or lichen of Northamptonshire Red Data Book status.

Mammals

Sites meeting or exceeding any one of the following thresholds will be considered to be Wildlife Sites in Northamptonshire:

a) Any otter holts with proven breeding within the last five years.

b) Swarming sites, Breeding roosts, hibernation sites and continuous semi-natural habitat in close proximity to breeding roosts for the following species of bat:
   - i) Noctule bat.
   - ii) Natterer's bat.
   - iv) Brown long-eared bat.
   - v) Barbastelle bat.
   - vi) Daubenton's bat.
   - vii) Leisler's bat.
   - viii) Whiskered/brandt's bat.

c) Sites with populations (recorded within the last five years) of:
   - i) Common dormouse.
   - ii) Water Vole.

Birds

Rare breeding birds in Northamptonshire are listed in Appendix 12.

Overwintering birds in Northamptonshire are listed in Appendix 13.

Breeding bird qualifying indices, separated according to habitat type, are given in Appendices 14 -19.

Sites meeting or exceeding any one of the following thresholds within the last five years will be considered to be Wildlife Sites in Northamptonshire:

a) Any site that regularly contains 0.1% or more of the total British non-breeding population of any species during any period (e.g. wintering, non-breeding summer, moulting, passage).

NB: three-year mean peak count should be used. This means the average of the highest count on any one visit per year for three years. The best three years from the latest five years is acceptable. This number is then compared with the count of that species in Britain (in the same time period). If the site's count is more than 0.1% the GB number, then it qualifies as a LWS, but with a minimum of 5 individuals. To use this, therefore, you need an up-to-date list of counts for species in GB to derive the 0.1% number.

b) Any site which supports a range of breeding birds with a value equal to or exceeding the following indices:
   - i) Lowland damp grassland - 10.
   - ii) Farmland, including field margins, hedgerows and neutral grassland – 24.
   - iii) Lowland open water and margins – 24.
   - iv) Scrub - 12.
   - v) Woodland – 33.
   - vi) Lowland heath and acid grassland - 13.

NB. For sites containing more than one habitat the threshold index should be the sum of those for the habitats present, and the value for species which are listed from more than one habitat should be counted for each habitat in which they occur.

c) Regular (ie used in 3 of the last 5 years) breeding sites of a national or county rarity species of native bird.

d) All sites used by breeding colonies of seabirds and sand martins for five consecutive years and with more than ten breeding pairs.

e) Traditional heronry sites.

f) Wet meadows or other suitable habitats containing more than three species or six pairs of any species of breeding wader.

g) Localities with one of the following:
   - i) 50 breeding species.
   - ii) 60 wintering species.

h) Open water sites regularly holding a total of more than 750 birds made up of the species shown in Appendix 13.

Amphibians and Reptiles

The scoring system for the selection of sites with assemblages of amphibians and reptiles is given in Appendix 20.

Sites meeting or exceeding any one of the following thresholds within the last five years will be considered to be Wildlife Sites in Northamptonshire (excluding garden ponds, swimming pools and any known introduced populations):

a) All sites supporting breeding populations of adder or suitable habitats connecting populations of adders in close proximity to one another.

b) Sites containing water bodies where mean counts of more than 30 individuals can be made in the breeding season of great crested newt based on the methodology set out within the Great Crested Newt Mitigation Guidelines (English Nature 2001) and a minimum of four site visits.

c) Sites supporting at least three amphibian or reptile species and achieving a minimum score of six using the table in Appendix 20.

Invertebrates

The statuses of different moth species in Northamptonshire are given in Appendix 21.

Sites meeting or exceeding any one of the following thresholds will be considered to be Wildlife Sites in Northamptonshire:

a) Any site supporting confirmed populations of nationally rare or scarce butterfly species.

NB – records must have been made within the last ten years. Recent deliberate introductions should not be included, with the exception of introductions made under the Biodiversity Action Plan process in Northamptonshire.

b) Macro moths:
   - i) Any site supporting breeding populations of nationally rare species.
   - ii) Any site supporting probable breeding populations of two or more species listed in the Northamptonshire's Red Data Book and that are associated with the relevant habitat.
   - iii) Any site supporting a probable breeding population of five county rarity species of macro moth associated with the relevant habitat.

NB. Records must have been made within the last ten years. Recent deliberate introductions should not be included. Probability or breeding should be based on the suitability of habitats and the availability of foodplants.

c) Dragonflies:
   - i) Any site supporting populations of nationally rare species of dragonfly.
   - ii) Any site supporting breeding populations of national, or county, scarce species of dragonfly.
   - iii) Any site supporting twelve or more confirmed breeding species of dragonfly.

NB – records must have been made within five years of the designation date.

d) Saproxylic beetles:
   - i) Any site with an ecological continuity index greater than ten.

NB – records must have been made since 1945

e) Any site supporting 35 or more species of water beetle.

f) Any site supporting a population of white-clawed crayfish within a stretch of water not below 50m in length.

g) All Invertebrates:
   - i) Any site supporting a breeding population of RDB1 (endangered) or RDB2 (vulnerable) species of invertebrate recorded since 1980.
   - ii) Any site with over one hundred species recorded and where two or more species are of national RDB or Na / Nb status and where those species are associated with the relevant habitats.

Appendix 1 Ancient Woodland Indicators in Northamptonshire

Latin Name	Common Name
Acer campestre	Field Maple
Allium ursinum	Ramsons
Anemone nemorosa	Wood Anemone
Aquilegia vulgaris	Columbine
Athyrium filix-femina	Lady Fern
Blechnum spicant	Hard Fern
Calamagrostis canescens	Purple Small-reed
Campanula latifolia	Giant Bellflower
Campanula trachelium	Nettle-leaved Bellflower
Carex pallescens	Pale Sedge
Carex pendula	Pendulous Sedge
Carex remota	Remote Sedge
Carex strigosa	Thin-spiked Wood-sedge
Carex sylvatica	Wood-sedge
Corylus avellana	Hazel
Crataegus laevigata	Midland Hawthorn
Dipsacus pilosus	Small Teasel
Dryopteris affinis	Scaly Male Fern
Elymus caninus	Bearded Couch
Epipactis helleborine	Broad-leaved Helleborine
Epipactis purpurata	Violet Helleborine
Euonymus europaeus	Spindle
Euphorbia amygdaloides	Wood Spurge
Euphorbia lathyris	Caper Spurge
Gagea lutea	Yellow Star-of-Bethlehem
Galium odoratum	Woodruff
Helleborus foetidus	Stinking Hellebore
Hordelymus europaeus	Wood Barley
Hyacinthoide non-scripta	Bluebell
Hypericum hirsutum	Hairy St. John's-wort
Hypericum humifusum	Trailing St. John's-wort
Hypericum pulchrum	Slender St. John's-wort
Lamiastrum galeobdolon	Yellow Archangel
Lathraea squamaria	Toothwort
Lathyrus linifolius	Bitter-vetch
Lathyrus sylvestris	Narrow-leaved Everlasting pea
Luzula pilosa	Hairy Wood-rush
Lysimachia nemorum	Yellow Pimpernel
Melampyrum pratense	Common Cow-wheat
Melica uniflora	Wood Melick
Mercurialis perennis	Dog’s Mercury
Milium effusum	Wood Millet
Moehringia trinervia	Three-nerved Sandwort
Narcissus pseudonarcissus	Wild daffodil
Neottia nidus-avis	Bird's-nest Orchid
Ophrys insectifera	Fly Orchid
Orchis mascula	Early-purple Orchid
Oxalis acetosella	Wood-sorrel
Paris quadrifolia	Herb Paris
Pimpinella major	Greater Burnet-saxifrage
Platanthera chlorantha	Greater Butterfly-orchid
Poa nemoralis	Wood Meadow-grass
Primula vulgaris	Primrose
Quercus petraea	Sessile Oak
Ranunculus auricomus	Goldilocks Buttercup

Sedum telephium	Orpine
Sorbus torminalis	Wild Service-tree
Tilia cordata	Small-leaved Lime
Veronica montana	Wood Speedwell
Viburnum lantana	Wayfaring-tree
Vicia sylvatica	Wood Vetch
Viola reichenbachia	Early Dog-violet

Appendix 2 Woody species for determining scrub and hedgerow value

Latin Name	Common Name
Acer campestre	Field Maple
Alnus glutinosa	Alder
Betula pendula	Silver Birch
Betula pubescens	Downy Birch
Cornus sanguinea	Dogwood
Corylus avellana	Hazel
Crataegus monogyna	Hawthorn
Crataegus laevigata	Midland Hawthorn
Euonymus europaeus	Spindle
Fraxinus excelsior	Ash
Frangula alnus	Alder Buckthorn
Ilex aquifolium	Holly
Ligustrum vulgare	Wild Privet
Malus sylvestris	Crab Apple
Populus tremula	Aspen
Prunus avium	Wild Cherry
Prunus spinosa	Blackthorn
Quercus robur	Pedunculate Oak
Quercus petraea	Sessile Oak
Rhamnus cathartica	Buckthorn
Salix alba	White Willow
Salix caprea	Goat Willow
Salix cinerea	Grey Willow
Salix fragilis	Crack Willow
Sambucus nigra	Elder
Sorbus aria	Whitebeam
Sorbus aucuparia	Rowan
Sorbus torminalis	Wild Service-tree
Tilia cordata	Small-leaved Lime
Ulex europaeus	Gorse
Ulmus spp.	any elm
Ulmus glabra	Wych Elm
Ulmus minor	Small-leaved Elm
Ulmus plotii	Plot's Elm
Viburnum lantana	Wayfaring-tree
Viburnum opulus	Guelder-rose

Appendix 3 Woodland and hedgerow plants in Northamptonshire

Latin Name	Common Name
Acer campestre	Field Maple
Adoxa moschatellina	Moschatel
Ajuga reptans	Bugle
Alliaria petiolata	Garlic Mustard
Allium ursinum	Ramsons
Alnus glutinosa	Alder
Anemone nemorosa	Wood Anemone
Aquilegia vulgaris	Columbine (rare)
Arctium minus	Lesser Burdock
Arum maculatum	Lords-and-ladies
Athyrium filix-femina	Lady Fern
Atropa belladonna	Deadly Nightshade
Betula pendula	Silver Birch
Betula pubescens	Downy Birch
Blechnum spicant	Hard Fern (very rare [1 site])
Brachypodium sylvaticum	False-brome
Bromopsis ramosa	Hairy Brome
Calamagrostis canescens	Purple Small-reed (rare)
Calamagrostis epigejos	Wood Small-reed
Campanula latifolia	Giant Bellflower
Campanula trachelium	Nettle-leaved Bellflower
Cardamine flexuosa	Wavy Bitter-cress
Carex pallescens	Pale Sedge
Carex pendula	Pendulus Sedge
Carex remota	Remote Sedge
Carex strigosa	Thin-spiked Wood-sedge
Carex sylvatica	Wood-sedge
Cephalanthera damasonium	White Helleborine
Ceratocapnos claviculata	Climbing Corydalis
Chrysosplenium oppositifolium	Opposite-leaved Golden-saxifrage (rey rare)
Circaea lutetiana	Enchanter's-nightshade
Clematis vitalba	Traveller's Joy
Conopodium majus	Pignut
Cornus sanguinea	Dogwood
Corylus avellana	Hazel
Crataegus laevigata	Midland Hawthorn
Crataegus monogyna	Hawthorn
Dactylorhiza fuchsii	Common Spotted-orchid
Daphne laureola	Spurge-laurel
Deschampsia caespitosa	Tufted Hair-grass
Deschampsia flexuosa	Wavy Hair-grass
Digitalis purpurea	Foxglove (rare)
Dipsacus pilosus	Small Teasel (rare)
Dryopteris affinis	Scaly Male Fern
Dryopteris carthusiana	Narrow Buckler-fern
Dryopteris dilatata	Broad Buckler-fern
Dryopteris filix-mas	Common Male Fern
Elymus caninus	Bearded Couch
Epilobium montanum	Broad-leaved Willowherb
Epipactis helleborine	Broad-leaved Helleborine
Epipactis purpurata	Violet Helleborine (rare)
Euonymus europaeus	Spindle
Euphorbia amygdaloides	Wood Spurge (rare)
Euphorbia lathyris	Caper Spurge (very rare)
Festuca gigantea	Giant Fescue

Filipendula ulmaria	Meadowsweet
Fragaria vesca	Wild Strawberry
Frangula alnus	Alder Buckthorn (very rare)
Fraxinus excelsior	Ash
Gagea lutea	Yellow Star-of-Bethlehem (very rare)
Galium odoratum	Woodruff
Geranium robertianum	Herb-robert
Geum urbanum	Herb Bennet
Glechoma hederacea	Ground-ivy
Hedera helix	Ivy
Helleborus foetidus	Stinking Hellebore (very rare)
Hordelymus europaeus	Wood Barley (very rare)
Hyacinthoides non-scripta	Bluebell
Hypericum hirsutum	Hairy St. John's-wort
Hypericum humifusum	Trailing St. John's-wort (rare)
Hypericum pulchrum	Slender St. John's-wort (rare)
Ilex aquifolium	Holly
Iris foetidissima	Stinking Iris (rare)
Lamiastrum galeobdolon	Yellow Archangel
Lapsana communis	Nipplewort
Lathraea squamaria	Toothwort (very rare)
Lathyrus linifolius	Bitter-vetch (rare)
Lathyrus sylvestris	Narrow-leaved Everlasting-pea (rare)
Ligustrum vulgare	Wild Privet
Listera ovata	Common Twayblade
Lithospermum officinale	Common Gromwell
Lonicera periclymenum	Honeysuckle
Luzula pilosa	Hairy Wood-rush (rare)
Luzula sylvatica	Great Wood-rush (very rare)
Lychnis flos-cuculi	Ragged Robin
Lysimachia nemorum	Yellow Pimpernel
Lysimachia nummularia	Creeping-Jenny
Malus sylvestris	Crab Apple
Melampyrum pratense	Common Cow-wheat (very rare [2 sites])
Melica uniflora	Wood Melick
Mercurialis perennis	Dog's Mercury
Milium effusum	Wood Millet
Moehringia trinervia	Three-nerved Sandwort
Narcissus pseudonarcissus	Wild daffodil (very rare)
Neottia nidus-avis	Bird's-nest Orchid (very rare [6 sites])
Ophrys insectifera	Fly Orchid (very rare [4 sites])
Orchis mascula	Early-purple Orchid
Oxalis acetosella	Wood-sorrel
Paris quadrifolia	Herb Paris (rare)
Pimpinella major	Greater Burnet-saxifrage
Platanthera chlorantha	Greater Butterfly-orchid (rare)
Poa nemoralis	Wood Meadow-grass
Polypodium vulgare	Polypody
Polystichum aculeatum	Hard Shield-fern (rare [7sites])
Polystichum setiferum	Soft Shield-fern (rare [8 sites])
Populus tremula	Aspen
Potentilla sterilis	Barren Strawberry
Primula vulgaris	Primrose
Prunella vulgaris	Selfheal
Prunus avium	Wild Cherry
Prunus spinosa	Blackthorn
Pteridium aquilinum	Bracken
Quercus petraea	Sessile Oak (rare)
Quercus robur	Pedunculate Oak
Ranunculus auricomus	Goldilocks Buttercup

Ranunculus ficaria	Lesser Celandine
Rhamnus cathartica	Buckthorn
Rosa canina	Dog Rose
Rubus caesius	Dewberry
Rubus fruticosus	Bramble
Rumex sanguineus	Wood Dock
Salix alba	White Willow
Salix caprea	Goat Willow
Salix cinerea	Grey Willow
Salix fragilis	Crack Willow
Sambucus nigra	Elder
Sanicula europaea	Sanicle
Scirpus sylvaticus	Wood Club-rush (rare)
Scrophularia nodosa	Common Figwort
Sedum telephium	Orpine (very rare)
Senecio sylvaticus	Heath Groundsel (rare)
Silene dioica	Red Campion
Sorbus torminalis	Wild Service-tree (very rare)
Sorbus aucuparia	Rowan (often planted, naturally rare [only in SW])
Stachys sylvatica	Hedge Woundwort
Stellaria holostea	Greater Stitchwort
Tamus communis	Black Bryony
Taxus baccata	Yew
Teucrium scorodonia	Wood Sage (very rare)
Tilia cordata	Small-leaved Lime (uncommon in south of county)
Ulex europaeus	Gorse
Ulmus sp.	any elm
Ulmus glabra	Wych Elm
Ulmus plotii	Plot's Elm (very rare)
Ulmus minor	Small-leaved Elm
Veronica montana	Wood Speedwell (rare)
Viburnum lantana	Wayfaring-tree
Viburnum opulus	Guelder-rose
Vicia sylvatica	Wood Vetch (rare)
Vicia sepium	Bush Vetch
Viola reichenbachiana	Early Dog-violet
Viola odorata	Sweet Violet
Viola riviniana	Common Dog-violet

Species listed as rare/very rare were taken from Gent and Wilson et al, 1995.

Appendix 4 Neutral Grassland Indictors in Northamptonshire

** Strong indicators*

Latin Name	Common Name
Achillea ptarmica*	Sneezewort
Agrimonia eupatoria	Agrimony
Agrimonia procera	Fragrant Agrimony
Ajuga reptans	Bugle
Alchemilla filicaulis vestita*	Lady's-mantle
Briza media*	Quaking-grass
Bromus commutatus*	Meadow Brome
Caltha palustris*	Marsh Marigold
Cardamine pratensis	Cuckoo-flower
Carex caryophyllea*	Spring Sedge
Carex disticha*	Brown Sedge
Carex flacca*	Glaucous Sedge
Carex hirta	Hairy Sedge
Carex nigra*	Common Sedge
Carex panicea*	Carnation Sedge
Carex spicata*	Spiked Sedge
Campanula rotundifolia	Harebell
Centaurea nigra	Common Knapweed
Centaurium erythraea	Common Centaury
Cirsium acaule*	Dwarf Thistle
Conopodium majus	Pignut
Dactylorhiza fuchsii*	Common Spotted-orchid
Dactylorhiza incarnata*	Early Marsh-orchid
Danthonia decumbens*	Heath-grass
Eleocharis palustris	Common Spike-rush
Euphrasia nemorosa*	Eyebright
Filipendula vulgaris*	Dropwort
Galium uliginosum*	Fen Bedstraw
Galium verum	Lady's Bedstraw
Genista tinctoria*	Dyer's Greenweed
Geranium pratense	Meadow Crane's-bill
Helictotrichon pratense*	Meadow Oat-grass
Helictotrichon pubescens*	Downy Oat-grass
Hordeum secalinum	Meadow Barley
Hypericum perforatum	Perforate St. John's-wort
Hypericum tetrapterum	Square-stalked St. John's-wort
Juncus compressus	Round-fruited Rush
Knautia arvensis*	Field Scabious
Koeleria macrantha	Crested Hair-grass
Lathyrus nissolia*	Grass Vetchling
Lathyrus pratensis	Meadow Vetchling
Leontodon hispidus*	Rough Hawkbit
Leontodon saxatilis*	Lesser Hawkbit
Leucanthemum vulgare	Oxeye Daisy
Linum catharticum*	Fairy Flax
Lotus corniculatus	Common Bird's-foot-trefoil
Luzula campestris	Field Wood-rush
Lychnis flos-cuculi*	Ragged Robin
Lysimachia nummularia	Creeping-Jenny
Oenanthe fistulosa*	Tubular Water-dropwort
Ononis repens*	Common Restharrow
Ononis spinosa*	Spiny Restharrow
Ophioglossum vulgatum*	Adder's-tongue

Ophrys apifera	Bee Orchid
Orchis morio*	Green-winged Orchid
Pilosella officinarum*	Mouse-ear-hawkweed
Pimpinella saxifraga	Burnet-saxifrage
Plantago media	Hoary Plantain
Polygala vulgaris*	Common Milkwort
Potentilla erecta*	Tormentil
Potentilla sterilis*	Barren Strawberry
Primula veris	Cowslip
Primula vulgaris	Primrose
Pulicaria dysenterica	Common Fleabane
Ranunculus auricomus	Goldilocks Buttercup
Ranunculus bulbosus	Bulbous Buttercup
Ranunculus ficaria	Lesser Celandine
Ranunculus flammula*	Lesser Spearwort
Rhinanthus minor*	Yellow-rattle
Rumex acetosa	Common Sorrel
Salvia verbenaca*	Wild Clary
Sanguisorba minor*	Salad Burnet
Sanguisorba officinalis*	Great Burnet
Saxifraga granulata*	Meadow Saxifrage
Senecio aquaticus*	Marsh Ragwort
Senecio erucifolius	Hoary Ragwort
Serratula tinctoria*	Saw-wort
Silaum silaus*	Pepper-saxifrage
Stachys officinalis*	Betony
Stellaria graminea	Lesser Stitchwort
Succisa pratensis*	Devil's-bit Scabious
Thalictrum flavum*	Common Meadow-rue
Trifolium fragiferum	Strawberry Clover
Trifolium ochroleucon*	Sulphur Clover
Triglochin palustre*	Marsh Arrowgrass
Trisetum flavescens	Yellow Oat-grass
Valeriana dioica*	Marsh Valerian
Viola canina*	Heath Dog-violet
Viola hirta*	Hairy Violet

Appendix 5 - Calcareous Grassland Indictors in Northamptonshire

**strong indicator*

Latin Name	Common Name
Aceras anthropophorum*	Man Orchid
Agrimonia eupatoria	Agrimony
Anacamptis pyramidalis*	Pyramidal Orchid
Anthyllis vulneraria*	Kidney Vetch
Asperula cynanchica*	Squinancywort
Astragalus danicus*	Purple Milk-vetch
Blackstonia perfoliata*	Yellow-wort
Brachypodium pinnatum*	Tor-grass
Briza media*	Quaking-grass
Bromopsis erecta*	Upright Brome
Campanula glomerata*	Clustered Bellflower
Campanula rotundifolia*	Harebell
Carduus nutans	Musk Thistle
Carex caryophyllea*	Spring Sedge
Carex flacca*	Glaucous Sedge
Carlina vulgaris*	Carline Thistle
Centaurea nigra	Common Knapweed
Centaurea scabiosa*	Greater Knapweed
Centaurium erythraea	Common Centaury
Cirsium acaule*	Dwarf Thistle
Cirsium eriophorum*	Woolly Thistle
Clinopodium acinos*	Basil Thyme
Clinopodium vulgare*	Wild Basil
Coeloglossum viride*	Frog Orchid
Dactylorhiza fuchsii*	Common Spotted-orchid
Euphrasia nemorosa*	an eyebright
Festuca ovina*	Sheep's Fescue [agg.]
Filipendula vulgaris*	Dropwort
Galium verum	Lady's Bedstraw
Genista tinctoria*	Dyer's Greenweed
Gentianella amarella*	Autumn Gentian
Gymnadenia conopsea*	Fragrant Orchid
Helianthemum nummularium*	Common Rock-rose
Helictotrichon pratense*	Meadow Oat-grass
Helictotrichon pubescens*	Downy Oat-grass
Hippocrepis comosa*	Horseshoe Vetch
Hypericum perforatum	Perforate St. John's-wort
Hypochaeris maculata*	Spotted Cat's-ear
Inula conyzae*	Ploughman's-spikenard
Knautia arvensis*	Field Scabious
Koeleria macrantha*	Crested Hair-grass
Leontodon hispidus*	Rough Hawkbit
Leontodon saxatilis*	Lesser Hawkbit
Leucanthemum vulgare	Oxeye Daisy
Linum catharticum*	Fairy Flax
Lotus corniculatus	Common Bird's-foot-trefoil
Onobrychis viciifolia*	Sainfoin
Ononis repens*	Common Restharrow
Ononis spinosa*	Spiny Restharrow
Ophrys apifera	Bee Orchid
Origanum vulgare*	Wild Marjoram
Orobanche elatior*	Knapweed Broomrape
Pastinaca sativa	Wild Parsnip

Picris hieracioides*	Hawkweed Oxtongue
Pilosella officinarum*	Mouse-ear-hawkweed
Pimpinella saxifraga	Burnet-saxifrage
Plantago media	Hoary Plantain
Polygala vulgaris*	Common Milkwort
Primula veris	Cowslip
Ranunculus bulbosus	Bulbous Buttercup
Rhinanthus minor*	Yellow-rattle
Sanguisorba minor*	Salad Burnet
Scabiosa columbaria*	Small Scabious
Senecio erucifolius	Hoary Ragwort
Serratula tinctoria*	Saw-wort
Silene vulgaris	Bladder Campion
Stachys officinalis*	Betony
Succisa pratensis*	Devil's-bit Scabious
Thymus polytrichus*	Wild Thyme
Thymus pulegioides*	Large Thyme
Verbascum nigrum	Dark Mullein
Viola hirta*	Hairy Violet

Appendix 6 - Heathland and Acid Grassland Indicator Species in Northamptonshire

**strong indicator*

Latin Name	**Common Name**
Agrostis capillaris	Common bent (Common)
Aira caryophyllea	Silver hair-grass ***** (Uncommon)
Aira praecox	Early hair-grass (Very rare)
Anchusa arvensis	Bugloss (Rare)
Anthriscus caucalis	Bur parsley / Bur chervil (Extremely rare)
Aphanes sp.	Parsley-pierts (Frequent)
Astragalus danicus	Purple milk-vetch (Very rare)
Calluna vulgaris	Heather * (Rare)
Campanula rotundifolia	Harebell (Occasional)
Cetraria spp	Mosses
Cladonia spp	Lichens
Carex muricata subsp. Lamprocarpa	Prickly sedge (Extremely rare)
Carex pilulifera	Pill sedge ***** (Very rare)
Carlina vulgaris	Carline thistle (Rare)
Cerastium semidecandrum	Little mouse-ear ***** (Rare)
Ceratocapnos claviculata	Climbing corydalis (Extremely rare)
Cytisus scoparius	Broom (Occasional)
Danthonia decumbens	Heath-grass (Very rare)
Deschampsia flexuosa	Wavy hair-grass (Very uncommon)
Echium vulgare	Viper's bugloss (Rare)
Erigeron acer	Blue fleabane (Occasional)
Erica tetralix	Cross-leaved heath * (Extremely rare)
Erica cinerea	Bell heather * (Very rare)
Erodium cicutarium	Common stork's-bill (Occasional)
Filago vulgaris	Common cudweed ***** (Very rare woods)
Galium saxatile	Heath bedstraw (Very occasional)
Galium verum	Lady's bedstraw (Common)
Genista tinctoria	Dyer’s green-weed (Rare)
Helianthemum nummularium	Common rock-rose (Rare)
Hieracium umbellatum	A hawkweed (Extremely rare)
Hypericum humifusum	Trailing St. John's-wort (Rare)
Jasione montana	Sheep's-bit (Probably extinct)
Lathyrus linifolius	Bitter-vetch (Rare)
Leontodon hispidus	Rough hawkbit (Common)
Leontodon saxatilis	Lesser hawkbit (Very occasional)
Lotus corniculatus	Common bird's-foot-trefoil (Very common)
Luzula multiflora	Heath wood-rush (Very occasional)
Myosotis discolor	Changing Forget-me-not ***** (Occasional)
Myosotis ramosissima	Early forget-me-not (Occasional)
Orchidaceae spp.	Orchids
Ornithopus perpusillus	Bird's-foot * (Very rare)
Pedicularis sylvatica	Lousewort (Presumed extinct)
Pilosella officinarum	Mouse-ear hawkweed (Fairly common)
Pimpinella saxifrage	Burnet saxifrage (Occasional)
Plantago coronopus	Buck's-horn plantain (Extinct)
Polygala spp.	Milkworts (Common Milkwort –occasional) (Heath milkwort – rare)
Polystichum aculeatum	Hard shield-fern (Very rare)
Potentilla erecta	Tormentil (Occasional)
Pteridium aquilinum	Bracken (Common on sandy soils)
Rumex acetosella	Sheep's sorrel (Occasional)

Rubus pimpinellifolia	Burnet Rose (Very rare)
Sanguisorba officinalis	Great burnet (Base enriched flushes on grassy heaths)
Sedum acre	Biting stonecrop (Frequent)
Serratula tinctoria	Saw-wort (Very rare)
Silene dioica	Red campion (Common)
Solidago virgaurea	Goldenrod ***** (Probably extinct)
Spergularia rubra	Sand spurrey ***** (Extremely rare)
Stachys officinalis	Betony (Occasional)
Succisa pratensis	Devil's-bit scabious (Occasional)
Teesdalia nudicaulis	Shepherd's cress (Extinct)
Teucrium scorodonia	Wood sage (Extremely rare)
Thymus spp	Thymes (Large thyme – Extremely rare) (Wild thyme – Occasional)
Trifolium arvense	Hare's-foot Clover (Occasional)
Veronica officinalis	Heath speedwell * (Occasional)
Ulex europaeus	Gorse (Common on lighter soils)
Ulex minor	Dwarf gorse ***** (Extremely rare)
Viola spp.	Violets * (Heath dog-violet – Very rare)

Appendix 7 - Fen, Swamp and Marsh Indicator Species in Northamptonshire

**Strong indicator*

Latin Name	Common Name
Achillea ptarmica*	Sneezewort
Alopecurus aequalis*	Orange Foxtail
Alopecurus geniculatus	Marsh Foxtail
Angelica sylvestris	Wild Angelica
Apium inundatum*	Lesser Marshwort
Bidens cernua	Nodding Bur Marigold
Bidens tripartita	Bur Marigold
Blysmus compressus*	Flat-sedge
Caltha palustris*	Marsh Marigold
Carex acuta*	Slender Tufted-sedge
Carex disticha	Brown Sedge
Carex echinata*	Star Sedge
Carex nigra	Common Sedge
Carex ovalis	Oval Sedge
Carex paniculata*	Greater Tussock-sedge
Carex pseudocyperus*	Cyperus Sedge
Carex pulicaris*	Flea Sedge
Carex rostrata*	Bottle Sedge
Carex viridula*	Yellow Sedge
Cirsium palustre	Marsh Thistle
Dactylorhiza incarnata*	Early Marsh-orchid
Dactylorhiza praetermissa*	Southern Marsh-orchid
Equisetum palustre	Marsh Horsetail
Eriophorum angustifolium	Common Cottongrass
Eupatorium cannabinum	Hemp-agrimony
Filipendula ulmaria	Meadowsweet
Galium palustre	Common Marsh-bedstraw
Galium uliginosum*	Fen Bedstraw
Hydrocotyle vulgaris*	Marsh Pennywort
Iris pseudacorus	Yellow Iris
Isolepis setacea*	Bristle Club-rush
Juncus bulbosus*	Bulbous Rush
Juncus compressus	Round-fruited Rush
Juncus subnodulosus*	Blunt-flowered Rush
Limosella aquatica*	Mudwort
Lotus pedunculatus	Greater Bird’s-foot-trefoil
Lychnis flos-cuculi	Ragged Robin
Lysimachia vulgaris	Yellow Loosestrife
Lythrum salicaria	Purple-loosestrife
Mentha aquatica	Water Mint
Mentha aquatica	Whorled Mint
Molinia caerulea*	Purple Moor-grass
Myosotis laxa	Tufted Forget-me-not
Myosotis scorpioides	Water Forget-me-not
Oenanthe fistulosa*	Tubular Water-dropwort
Pulicaria dysenterica	Common Fleabane
Ranunculus flammula*	Lesser Spearwort
Ranunculus lingua*	Greater Spearwort
Rorippa sylvestris	Creeping Yellow-cress
Rumex hydrolapathum	Water Dock
Rumex palustris	Marsh Dock

Samolus valerandi*	Brookweed
Schoenoplectus tabernaemontani*	Grey Club-rush
Scutellaria galericulata	Skullcap
Senecio aquaticus	Marsh Ragwort
Sium latifolium*	Great Water-parsnip
Stachys palustris	Marsh Woundwort
Stellaria uliginosa	Bog Stitchwort
Symphytum officinale	Common Comfrey
Thalictrum flavum	Meadow - rue
Triglochin palustre*	Marsh Arrowgrass
Valeriana dioica*	Marsh Valerian
Valeriana officinalis	Common Valerian
Veronica scutellata*	Marsh Speedwell

Appendix 8 - Nationally Rare Species of native vascular plants found in Northamptonshire

Taken from Northamptonshire's Red Data Book (1996).

Latin Name	Common Name
Agrostemma githago	Corn Cockle
Mentha pulegium	Pennyroyal
Hypochoeris maculata	Spotted cat's-ear

Appendix 9 - Nationally scarce species of native vascular plants found in Northamptonshire

As listed in Northamptonshire's Red Data Book (1996). Species only occurring within the Soke of Peterborough are not included.

Latin Name	Common Name
Cerastium pumilum	Dwarf Mouse-ear
Cyperus longus	Galingale
Euphorbia platyphyllos	Broad-leaved Spurge
Fumaria densiflora	Dense-flowered Fumitory
Helleborus foetidus	Stinking Hellebore
Hordelymus europaeus	Wood Barley
Limosella aquatica	Mudwort
Luronium natans	Floating Water-plant
Myriophyllum verticillatum	Whorled Water-milfoil
Potamogeton coloratus	Fen Pondweed
Scandix pecten-veneri	Shepherd's-needle
Sium latifolium	Great Water-parsnip
Sonchus palustris	Marsh Sow-thistle
Trifolium ochroleucon	Sulphur Clover
Ulmus plotii	Plot's Elm

Appendix 10 - Extremely rare species of native vascular plants in Northamptonshire

Taken from 'The Flora of Northamptonshire and the Soke of Peterborough' (species only recorded in the Soke of Peterborough have been removed from the list). These species are recorded from three or fewer localities in Northamptonshire since 1970.

Latin Name	Common Name
Agrimonia procera	Fragrant Agrimony
Agrostemma githago	Corncockle
Anagallis arvensis ssp. caerulea	Blue Pimpernel
Anagallis tenella	Bog Pimpernel
Anthriscus caucalis	Bur Parsley
Aphanes inexspectata	Slender Parsley-piert
Arabis hirsuta	Hairy Rock-cress
Astragalus danicus	Purple Milk-vetch
Blechnum spicant	Hard Fern
Blysmus compressus	Flat-sedge
Bromus racemosus	Smooth Brome

Bromus hordeaceus ssp. thominei	Lesser Soft-brome
Carex binervis	Green-ribbed Sedge
Carex distans	Distant Sedge
Carex divulsa ssp. leersii	Leers' Sedge
Carex hostiana	Tawny Sedge
Carex pulicaris	Flea Sedge
Carex rostrata	Bottle Sedge
Carex vesicaria	Bladder-sedge
Carex muricata ssp. lamprocarpa	Prickly Sedge
Carex viridula ssp. oedocarpa	Common Yellow Sedge
Centaurium pulchellum	Lesser Centaury
Cephalanthera damasonium	White Helleborine
Cephalanthera longifolia	Narrow-leaved Helleborine
Cerastium pumilum	Dwarf Mouse-ear
Cyperus longus	Galingale
Dactylorhiza incarnata ssp. pulchella	an early marsh-orchid
Dactylorhiza maculata ssp. ericetorum	a heath spotted-orchid
Epilobium lanceolatum	Spear-leaved Willowherb
Epilobium roseum	Pale Willowherb
Equisetum sylvaticum	Wood Horsetail
Erica cinerea	Bell Heather
Erica tetralix	Cross-leaved Heath
Euphorbia lathyris	Caper Spurge
Euphorbia platyphyllos	Broad-leaved Spurge
Filago vulgaris	Common cudweed
Frangula alnus	Alder Buckthorn
Fumaria densiflora	Dense-flowered Fumitory
Galium parisiense	Wall Bedstraw
Genista anglica	Petty Whin
Geum rivale	Water Avens
Gnaphalium sylvaticum	Heath Cudweed
Gymnadenia conopsea ssp. conopsea	a fragrant orchid
Helleborus viridis	Green Hellebore
Hieracium umbellatum	a hawkweed
Hordelymus europaeus	Wood Barley
Hottonia palustris	Water-violet
Hypericum androsaemum	Tutsan
Hypochaeris maculata	Spotted Cat's-ear
Juncus bulbosus	Bulbous Rush
Juncus compressus	Round-fruited rush
Juncus gerardii	Saltmarsh Rush
Littorella uniflora	Shoreweed
Luronium natans	Floating Water-plantain
Melampyrum pratense	Common Cow-wheat
Menyanthes trifoliata	Bogbean
Monotropa hypopitys	Yellow Bird's-nest
Myosurus minimus	Mousetail
Myriophyllum alterniflorum	Alternate Water-milfoil
Myriophyllum verticillatum	Whorled Water-milfoil
Oenanthe fluviatilis	River water-dropwort
Ophrys insectifera	Fly Orchid
Ornithopus perpusillus	Bird's-foot
Pedicularis palustris	Marsh Lousewort
Persicaria bistorta	Common Bistort
Petroselinum segetum	Corn Parsley
Poa humilis	Spreading Meadow-grass
Poa palustris	Swamp Meadow-grass
Potamogeton coloratus	Fen Pondweed
Potamogeton praelongus	Long-stalked Pondweed
Ranunculus hederaceus	Ivy-leaved Crowfoot

Ranunculus lingua	Greater Spearwort
Ranunculus sardous	Hairy Buttercup
Sagina nodosa	Knotted Pearlwort
Scandix pecten-veneris	Shepherd's-needle
Schoenoplectus tabernaemontani	Grey Club-rush
Sium latifolium	Great Water-parsnip
Sonchus palustris	Marsh Sow-thistle
Spergularia rubra	Sand Spurrey
Spiranthes spiralis	Autumn Lady's-tresses
Spirodela polyrhiza	Greater Duckweed
Stellaria neglecta	Greater Chickweed
Stellaria palustris	Marsh Stitchwort
Teucrium scorodonia	Wood Sage
Thymus pulegioides	Large Thyme
Trifolium ochroleucon	Sulphur Clover
Ulex minor	Dwarf Gorse
Ulmus plotii	Plot's Elm
Umbilicus rupestris	Navelwort
Viola tricolor	Wild Pansy
Viola canina ssp. canina	a heath dog-violet

Appendix 11 - Rare and declining arable weeds in Northamptonshire

Latin Name	**Common Name**
Anchusa arvensis	Field bugloss
Apera interrupta	Dense silky-bent
Chrysanthemum segetum	Corn marigold
Euphorbia platyphyllos	Broad-leaved spurge
Fumaria densiflora	Dense-flowered fumitory
Galeopsis speciosa	Large-flowered hemp-nettle
Papaver argemone	Prickly poppy
Papaver hybridum	Rough poppy
Petroselinum segetum	Corn parsley
Ranunculus arvensis	Corn buttercup
Ranunculus parviflorus	Small-flowered buttercup
Scandix pecten-virens	Shepherd’s needle
Silene noctiflora	Night-flowering catchfly
Spergula arvensis	Corn spurrey
Spergularia rubra	Sand spurrey
Stachys arvensis	Field woundwort
Valerianella dentata	Narrow-fruited corn-salad
Legousia hybrida	Venus’s-looking-glass

Appendix 12 Rare Breeding birds In Northamptonshire.

Latin Name	Common Name
Accipiter gentilis	Goshawk
Aix galericulata	Mandarin
Anas clypeata	Shoveler
Anas crecca	Teal
Anas querquedula	Garganey
Anas strepera	Gadwall
Anthus trivialis	Tree Pipit
Asio otus	Long-eared Owl
Aythya ferina	Pochard
Buteo buteo	Buzzard
Caprimulgus europaeus	Nightjar
Carduelis spinus	Siskin
Cettia cetti	Cetti's Warbler
Charadrius dubius	Little Ringed Plover
Charadrius hiaticula	Ringed Plover
Coccothraustes coccothraustes	Hawfinch
Coturnix coturnix	Quail
Falco subbuteo	Hobby
Gallinago gallinago	Snipe
Haematopus ostralegus	Oystercatcher
Larus fuscus graellsii	Lesser Black-backed Gull
Larus ridibundus	Black-headed Gull
Loxia curvirostra	Crossbill
Miliaria calandra	Corn Bunting
Milvus milvus	Red Kite
Numenius arquata	Curlew
Passer montanus	Tree Sparrow
Pernis apivorus	Honey Buzzard
Phoenicurus ochruros	Black Redstart
Phoenicurus phoenicurus	Redstart
Phylloscopus sibilatrix	Wood Warbler
Podiceps grisegena	Red-necked Grebe
Podiceps nigricollis	Black-necked Grebe
Rallus aquaticus	Water Rail
Regulus ignicapillus	Firecrest
Saxicola rubetra	Whinchat
Saxicola torquata	Stonechat
Tadorna tadorna	Shelduck

Appendix 13 Overwintering Birds In Northamptonshire

Latin Name	Common Name
Anas acuta	Pintail
Anas clypeata	Shoveler
Anas crecca	Teal
Anas Penelope	Wigeon
Anas platyrhynchos	Mallard
Anas strepera	Gadwall
Aythya ferina	Pochard
Aythya fuligula	Tufted Duck
Bucephala clangula	Goldeneye
Cygnus olor	Mute Swan
Fulica atra	Coot
Gallinula chloropus	Moorhen
Mergus merganser	Goosander
Podiceps cristatus	Great Crested Grebe
Tachybaptus ruficollis	Little Grebe

Appendix 14 Breeding species of farmland (including field margins, hedgerows, and neutral grassland)

Latin Name	Common Name	Index value	
		NCC	***Northants***
Alauda arvensis	Skylark	0	2
Anthus pratensis	Meadow Pipit	0	4
Athene noctua	Little Owl	2.5	3
Burhinus oedicnemus	Stone-curlew	4	6
Carduelis cannabina	Linnet	1	3
Circus aeruginosus	Marsh Harrier	5	6
Circus pygargus	Montagu's Harrier	6	6
Coturnix coturnix	Quail	5	5
Cuculus canorus	Cuckoo	2	2
Emberiza cirlus	Cirl Bunting	4	6
Emberiza citrinella	Yellowhammer	0	2.5
Emberiza schoeniclus	Reed Bunting	1	2
Falco subbuteo	Hobby	4	4
Falco tinnunculus	Kestrel	2	3
Lanius collurio	Red-backed Shrike	5	6
Locustella naevia	Grasshopper Warbler	2	3
Miliaria calandra	Corn Bunting	2	3
Motacilla flava	Yellow Wagtail	1	2.5
Passer montanus	Tree Sparrow	1	3.5
Perdix perdix	Grey Partridge	1.5	3
Saxicola rubetra	Whinchat	2	6
Saxicola torquata	Stonechat	2	6
Sylvia atricapilla	Blackcap	1	2
Sylvia borin	Garden Warbler	1	2
Sylvia communis	Whitethroat	2	2
Sylvia curruca	Lesser Whitethroat	2	2
Tyto alba	Barn Owl	3	4
Vanellus vanellus	Lapwing	1	2.5
Total		***42***	***49.5***
Threshold site-index value (50% of Total)		***21***	***25***

Appendix 15 Breeding species of lowland heath.

Latin Name	Common Name	Index value	
		NCC	***Northants***
Anthus trivialis	Tree Pipit	1.5	4
Asio otus	Long-eared Owl	3	4.5
Burhinus oedicnemus	Stone-curlew	4	6
Caprimulgus europaeus	Nightjar	3	6
Carduelis cannabina	Linnet	1	3
Circus pygargus	Montagu's Harrier	6	6
Coturnix coturnix	Quail	5	5
Cuculus canorus	Cuckoo	2	2
Falco subbuteo	Hobby	4	4
Gallinago gallinago	Snipe	2	5
Lanius collurio	Red-backed Shrike	5	6
Locustella naevia	Grasshopper Warbler	2	3
Lullula arborea	Woodlark	4	6
Numenius arquata	Curlew	2	5
Oenanthe oenanthe	Wheatear	2	5
Saxicola rubetra	Whinchat	2	6
Saxicola torquata	Stonechat	2	6
Sylvia undata	Dartford Warbler	4	6
Tringa totanus	Redshank	2	4
Total		***40.5***	***26.5***
Threshold site-index value (50%)		***20***	***13.25***

Appendix 16 Breeding Species of lowland damp grassland.

Latin Name	Common Name	Index value	
		NCC	***Northants***
Acrocephalus schoenobaenus	Sedge Warbler	1	2
Anas acuta	Pintail	5	6
Anas clypeata	Shoveler	4	5
Anas crecca	Teal	3	5
Anas querquedula	Garganey	5	6
Anas strepera	Gadwall	4	5
Asio flammeus	Short-eared Owl	3	6
Circus aeruginosus	Marsh Harrier	5	6
Coturnix coturnix	Quail	5	5
Crex crex	Corncrake	4	6
Cuculus canorus	Cuckoo	2	2
Cygnus olor	Mute Swan	3	3
Emberiza schoeniclus	Reed Bunting	1	2
Gallinago gallinago	Snipe	2	5
Limosa limosa	Black-tailed Godwit	5	6
Locustella naevia	Grasshopper Warbler	2	3
Motacilla flava	Yellow Wagtail	1	2.5
Numenius arquata	Curlew	2	5
Philomachus pugnax	Ruff	5	6
Saxicola rubetra	Whinchat	2	6
Tadorna tadorna	Shelduck	2	5
Tringa totanus	Redshank	2	4
Vanellus vanellus	Lapwing	1	2.5
Total		***39***	***25***
Threshold site-index value (41%)		***16***	***10.25***

Appendix 17 Breeding species of lowland open water and margins.

Latin Name	Common Name	Index value	
		NCC	***Northants***
Acrocephalus schoenobaenus	Sedge Warbler	1	2
Acrocephalus scirpaceus	Reed Warbler	2	3.5
Alcedo atthis	Kingfisher	3	3
Anas acuta	Pintail	5	6
Anas clypeata	Shoveler	4	5
Anas crecca	Teal	3	5
Anas querquedula	Garganey	5	6
Anas strepera	Gadwall	4	5
Ardea cinerea	Grey Heron	3	4
Aythya ferina	Pochard	4	5
Aythya fuligula	Tufted Duck	3	3
Botaurus stellaris	Bittern	5	6
Cettia cetti	Cetti's Warbler	4	6
Charadrius dubius	Little Ringed Plover	4	4.5
Charadrius hiaticula	Ringed Plover	3	4.5
Chlidonias niger	Black Tern	6	6
Circus aeruginosus	Marsh Harrier	5	6
Circus pygargus	Montagu's Harrier	6	6
Cuculus canorus	Cuckoo	2	2
Cygnus olor	Mute Swan	3	3
Emberiza schoeniclus	Reed Bunting	1	2
Gallinago gallinago	Snipe	2	5
Locustella luscinioides	Savi's Warbler	5	6
Locustella naevia	Grasshopper Warbler	2	3
Mergus serrator	Red-breasted Merganser	3	6
Motacilla cinerea	Grey Wagtail	2	3.5
Motacilla flava	Yellow Wagtail	1	2.5
Panurus biarmicus	Bearded Tit	4	6
Phalaropus lobatus	Red-necked Phalarope	5	6
Podiceps cristatus	Great Crested Grebe	3	3
Podiceps nigricollis	Black-necked Grebe	5	6
Porzana porzana	Spotted Crake	6	6
Rallus aquaticus	Water Rail	3	5
Recurvirostra avosetta	Avocet	4	6
Sterna hirundo	Common Tern	3	3.5
Tachybaptus ruficollis	Little Grebe	2.5	3
Tadorna tadorna	Shelduck	2	5
Tringa totanus	Redshank	2	4
Total		***77.5***	***59***
Threshold site-index Value (40%)		***31***	***24***

Appendix 18 Breeding species of scrub.

Latin Name	Common Name	Index value	
		NCC	***Northants***
Anthus trivialis	Tree Pipit	1.5	4
Asio otus	Long-eared Owl	3	4.5
Caprimulgus europaeus	Nightjar	3	6
Carduelis cannabina	Linnet	1	3
Cuculus canorus	Cuckoo	2	2
Emberiza cirlus	Cirl Bunting	4	6
Lanius collurio	Red-backed Shrike	5	6
Locustella naevia	Grasshopper Warbler	2	3
Luscinia megarhynchos	Nightingale	3	3.5
Saxicola rubetra	Whinchat	2	6
Saxicola torquata	Stonechat	2	6
Streptopelia turtur	Turtle Dove	1.5	2
Sylvia atricapilla	Blackcap	1	2
Sylvia borin	Garden Warbler	1	2
Sylvia communis	Whitethroat	2	2
Sylvia curruca	Lesser Whitethroat	2	2
Total		***31***	***30***
Threshold site-index value (50% of total)		***15***	***15***

Appendix 19 Breeding Species of woodlands.

Latin Name	Common Name	Index value	
		NCC	***Northants***
Accipiter gentilis	Goshawk	5	6
Accipiter nisus	Sparrowhawk	2	3
Aegithalos caudatus	Long-tailed Tit	1	2
Anthus trivialis	Tree Pipit	1.5	4
Ardea cinerea	Grey Heron	3	4
Asio otus	Long-eared Owl	3	4.5
Buteo buteo	Buzzard	3	5
Caprimulgus europaeus	Nightjar	3	6
Carduelis flammea	Redpoll	1	3
Carduelis spinus	Siskin	2	5
Certhia familiaris	Treecreeper	1	2
Coccothraustes coccothraustes	Hawfinch	3	5
Columba oenas	Stock Dove	1	2
Corvus corax	Raven	3	6
Cuculus canorus	Cuckoo	2	2
Dendrocopos major	Great Spotted Woodpecker	2	2
Dendrocopos minor	Lesser Spotted Woodpecke	3	3.5
Falco subbuteo	Hobby	4	4
Ficedula hypoleuca	Pied Flycatcher	2	6
Garrulus glandarius	Jay	1	2
Jynx torquilla	Wryneck	6	6
Loxia curvirostra	Crossbill	3	5
Loxia scotica	Scottish Crossbill	4	6
Luscinia megarhynchos	Nightingale	3	3.5
Milvus milvus	Red Kite	5	5
Muscicapa striata	Spotted Flycatcher	1	2.5
Oriolus oriolus	Golden Oriole	5	6
Pandion haliaetus	Osprey	5	6
Parus ater	Coal Tit	1	2
Parus montanus	Willow Tit	2	3
Parus palustris	Marsh Tit	1	2
Pernis apivorus	Honey Buzzard	5	6
Phoenicurus phoenicurus	Redstart	1	5
Phylloscopus collybita	Chiffchaff	1	1.5
Phylloscopus sibilatrix	Wood Warbler	2	5
Picus viridis	Green Woodpecker	2	2
Pyrrhula pyrrhula	Bullfinch	1	2.5
Regulus ignicapillus	Firecrest	5	6
Regulus regulus	Goldcrest	1	2
Scolopax rusticola	Woodcock	2	3.5
Serinus serinus	Serin	6	6
Sitta europaea	Nuthatch	2	2
Strix aluco	Tawny Owl	2	2.5
Sylvia atricapilla	Blackcap	1	2
Sylvia borin	Garden Warbler	1	2
Tetrao tetrix	Black Grouse	3	6
Turdus iliacus	Redwing	5	6
Turdus pilaris	Fieldfare	6	6
Upupa epops	Hoopoe	6	6
Total		***82.5***	***72.5***
Threshold site-value index (47%)		***39***	***34***

Appendix 20 - Scoring system for the selection of sites with assemblages of Herpetofauna

		Low Population	***Good population***	***Exceptional Population***
		Score 1	***Score 2***	***Score 3***
Great Crested Newt*	Seen or netted during the day Counted at night	<5 <10	5-50 10-100	>50 >100
Smooth Newt*	Netted in day Counted at night	<10	10-100	>100
Palmate Newt*	Netted in day Counted at night	<10	10-100	>100
Common Toad*	Estimated Counted	<500 <100	500-5000 100-1000	>5000 >1000
Common Frog*	Spawn clumps counted	<50	50-100	>500
Grass Snake	Tinning exercise	<1ha	> 2 - 4/ha	>4 / ha
Slow Worm	Tinning exercise	<50 / ha	>50 / ha	>100 / ha
Common Lizard	Tinning exercise	<20 / ha	>40 / ha	>80 / ha

*Scores must be for breeding sites observed during the breeding season. Daytime netting should be made during a 15-minute period for sites with less than 50m of water's edge, for 30 minutes for sites with 50-100m and so on. To compute the total score for a site, add the scores for individual species and add one point for four species present and two points for five species.

Appendix 21 - Northamptonshire Macro Moth Statuses

624 of Britain's approximately 900 species of larger moths have been recorded in the county. Although much work has been done on the National Moth Conservation Project to determine the current national status categories, the final results of the survey have not yet been published. This report is therefore based on the existing Red Data Book categories that are in current working use. These definitions stem from the national recording scheme for the larger moths that operated from 1967 to 1982, and are in part published in The Moths and Butterflies of Great Britain and Ireland, by Heath, J., Emmet, A. M. and others (1976-). The provisional findings of the current review propose many amendments to these categories, although the overall number of species covered remains similar.

This report is based on moths recorded after 1960, and incorporates all records known to the County Moth Recorder to date. English names follow A Recorder's Log Book of British Butterflies and Moths, by Bradley, J. D., and Fletcher, D. S. (1979). Moths that have suffered a dramatic decline in terms of their distribution within the county are noted as (D) ("declining"). Migrant, vagrant or accidental (M, V/A) records of species from other parts of the country are also noted; there is evidence to suggest that moths in these categories can become temporarily established.

A) National Red Data Book Species

Latin Name	Common Name	
Eriogaster lanestris	Small Eggar	RDB2 - vulnerable
Eupithecia abietaria	Cloaked Pug	RDB3 - rare
Heliothis viriplaca	Marbled Clover	RDB3 - rare
Photedes extrema	The Concolorus	RDB3 - rare
Tyta luctuosa	The Four-spotted	RDB2 - vulnerable.

B) Nationally Scarce Species

Latin Name	Common Name
Adscita statices	The Forester (D)
Agrotis cinerea	Light Feathered Rustic
Apamea oblonga	Crescent Striped
Apamea sublustris	Reddish Light Arches
Apoda limacodes	The Festoon
Archanara dissoluta	Brown-veined Wainscot
Archanara geminipuncta	Twin-spot Wainscot
Archiearis notha	Light Orange Underwing
Atolmis rubricollis	Red-necked Footman
Bembicea scopigera	Six-belted Clearwing
Boarmia roboraria	Great Oak Beauty (D)
Callimorpha dominula	Scarlet Tiger (V/A)
Catarhoe rubidatra	Ruddy Carpet
Cerastis leucographa	White-marked
Chesias rufata	Broom-tip
Chilodesh-s maritimus	Silky Wainscot
Chloroclystis chloerata	Sloe Pug
Cosmia diffinis	White-spotted Pinion (D)
Cossus cossus	Goat Moth (D)
Cryphia muralis	Marbled Green
Cucullia absinthii	The Wormwood
Cyclophora annulata	The Mocha (D)
Deileptenia ribeata	Satin Beauty
Dicycla oo	Heart Moth (D)
Drepana cultraria	Barred Hook-tip

Earias clorana	Cream-bordered Green Pea
Ectropis consonaria	Square Spot
Ectropis extersaria	Brindled White-spot
Eilema sororcula	Orange Footman
Ennomos autumnaria	Large Thorn
Eupithecia dodoneata	Oak-tree Pug
Eupithecia expallidata	Bleached Pug
Eupithecia indigata	Ochreous Pug
Eupithecia insigniata	Pinion-spotted Pug
Eupithecia inturbata	Maple Pug
Eupithecia irriguata	Marbled Pug
Eupithecia pimpinellata	Pimpinel Pug
Eupithecia subumbrata	Shaded Pug
Eupithecia trisignaria	Triple-spotted Pug
Eupithecia valerianata	Valerian Pug
Eupithecia virgaureata	Golden-rod Pug
Heliophobus reticulata	Bordered Gothic (D)
Herminia strigilata	Common Fan-foot (D)
Hydraecia petasitis	The Butterbur
Hydriomena ruberata	Ruddy Highflyer
Hypena rostralis	Buttoned Snout (D)
Idaea sylvestraria	Dotted Border Wave
Lacanobia contigua	Beautiful Brocade
Lithophane socia	Pale Pinion
Minoa murinata	Drab Looper
Mythimna obsoleta	Obscure Wainscot
Noctua orbona	Lunar Yellow Underwing (D)
Oria musculosa	Brighton Wainscot
Orthosa populeti	Lead-coloured Drab
Perconia strigillaria	Grass Wave
Phibalapteryx virgata	Oblique Striped (V/A)
Philereme vetulata	Brown Scallop
Photedes fluxa	Mere Wainscot
Ptilodontella cucullina	Maple Prominent
Rheumaptera cervinalis	Scarce Tissue
Rheumaptera hastata	Argent and Sable (D)
Rhyacia simulans	Dotted Rustic (D)
Sesia apiformis	Hornet Moth
Sesia bembeciformis	Lunar Hornet Moth
Synanthedon anthraciniformis	Orange-tailed Clearwing
Synanthedon formicaeformis	Red-tipped Clearwing
Synanthedon myopaeformis	Red-belted Clearwing
Synanthedon tipuliformis	Currant Clearwing
Synanthedon vespiformis	Yellow-legged Clearwing
Syngrapha interrogationis	Scarce Silver Y (M)
Tethea or	Poplar Lutestring
Tetheella fluctuosa	Satin Lutestring
Thera juniperata	Juniper Carpet
Trichopteryx polycommata	Barred Tooth-striped
Xanthia ocellaris	Pale-lemon Sallow
Xestia rhomboidea	Square-spotted Clay

C) Northamptonshire Scarce Species

Latin Name	**Common Name**
Angerona prunaria	Orange Moth (D)
Arenostola phragmitidis	Fen Wainscot
Celaena haworthii	Haworth's Minor (V/A)
Chloroclysta miata	Autumn Green Carpet (D)

Chloroclysta siterata	Red-green Carpet
Coenobia rufa	Small Rufous
Colostygia multistrigaria	Mottled Grey
Craniophora ligustri	The Coronet (D)
Cyclophora albipunctata	Birch Mocha
Cyclophora linearia	Clay Triple-lines
Diacrisia sannio	Clouded Buff (D)
Diarsia dahlii	Barred Chestnut
Eumictis lichenea	Feathered Ranunculus (V/A)
Eupithecia nanata	Narrow-winged Pug
Eupithecia pygmaeata	Marsh Pug
Eupithecia venosata	Netted Pug
Euphyia unangulata	Sharp-angled Carpet
Euproctis chrysorrhoea	Brown-tail (D)
Lycophotia porphyrea	True Lover's Knot (V/A)
Macrothylacia rubi	Fox Moth
Mythimna pudorina	Striped Wainscot
Odontosia carmelita	Scarce Prominent
Orthonama vittata	Oblique Carpet
Orthosia opima	Northern Drab
Papestra biren	Glaucous Shears (V/A)
Peridea anceps	Great Prominent (D)
Perizoma affinitata	The Rivulet
Plagodis pulveraria	Barred Umber
Plusia putnami gracilis	Lempke's Gold Spot
Pterapherapteryx sexalata	Small Seraphim
Rheumaptera undulata	Scallop Shell
Schrankia costaestrigalis	Pinion-streaked Snout
Scopula marginepunctata	Mullein Wave
Scotopteryx luridata	July Belle
Scotopteryx mucronata	Lead Belle
Semiothisa alternaria	Sharp-angled Peacock
Semiothisa notata	Peacock Moth
Stauropus fagi	Lobster Moth (D)
Xylena vetusta	Red Sword-grass